dpr

Department of Pesticide Regulation

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MEMORANDUM

TO: Alan C. Lloyd, Ph.D, Chairman
Air Resources Board
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FROM: Paul E. Helliker Paul Helliker
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DATE: June 28, 2000

SUBJECT: PROPOSED TOXIC AIR CONTAMINANT MONITORING FOR 2001

The Department of Pesticide Regulation (DPR) requests that the Air Resources Board (ARB) monitor for the following chemicals in 2001:

- 1,3-dichloropropene
- chloropicrin
- metam-sodium breakdown products
  - carbon disulfide
  - hydrogen sulfide
  - methyl isocyanate
  - methyl isothiocyanate
- methyl bromide
- sulfuryl fluoride

Basis for Selection of Pesticides

The selection of these chemicals is based on several factors. First, chloropicrin and metam-sodium breakdown products were requested for 2000, but postponed due to analytical problems. Second, all of these pesticides are major fumigants and will have a high priority for monitoring in DPR's revised prioritization (based on volatility, use, and toxicity). Third, most of these chemicals are conducive to simultaneous monitoring because they target many of the same pests and sites. Simultaneous monitoring will be a more efficient use of resources, particularly if ARB can develop a single method for several fumigants. In addition, DPR may want to conduct monitoring for the fumigants on a regular basis because use patterns are expected to change over the next several years with the phase out of methyl bromide. If ARB develops a single method, it will have great advantages for future monitoring. Fourth, in its review of the risk assessment, the National Academy of Sciences recommended additional methyl bromide monitoring for both agricultural and structural fumigations.

Specific Monitoring Requests

Monitoring should occur in two phases, one for agricultural applications and one for structural applications. Monitoring for agricultural applications should be similar to the study design originally proposed for 2000. Ambient monitoring of dichloropropene, chloropicrin, methyl bromide, methyl isocyanate, and methyl isothiocyanate should occur in at least two regions using the standard study design. Monitoring for structural applications of chloropicrin, methyl bromide, and sulfuryl fluoride should occur in one region using a modified study design because applications occur in non-agricultural areas. DPR will recommend the specific regions and time periods after evaluating the 1999 pesticide use reports.

Application-site monitoring should occur for the following types of applications: metam-sodium (carbon disulfide, hydrogen sulfide, methyl isocyanate, and methyl isothiocyanate) application through drip irrigation; chloropicrin application using a bed-tarpaulin method; methyl bromide and chloropicrin application to a structure; and sulfuryl fluoride and chloropicrin application to a structure. DPR will recommend the number, location, and time of these applications after evaluating the 1999 pesticide use reports. Monitoring structural fumigations will be different from agricultural applications. ARB monitoring staff should meet with DPR to discuss the study design. ARB and/or DPR have the sampling equipment required for the monitoring.

Based on a preliminary assessment of the toxicology data, DPR requests the following target quantitation limits:

• 1,3-dichloropropene	0.01 $\mu g/m^3$
• chloropicrin	0.1
• metam-sodium breakdown products	
- carbon disulfide	15.0
- hydrogen sulfide	5.0
- methyl isocyanate	0.05
- methyl isothiocyanate	0.5
• methyl bromide	0.4
• sulfuryl fluoride	30.0

These fumigants are acutely toxic gases. The application-site monitoring may require special safety precautions, possibly including the use of a full-face respirator or self-contained breathing apparatus. DPR's Worker Health and Safety Branch will review the monitoring plan and provide recommendations for field safety. DPR can provide safety equipment, training, and field assistance if necessary.

cc: John Froines, Ph.D, Chairman, Scientific Review Panel
Joan Denton, Ph.D, Director, Office of Environmental Health Hazard Assessment
Chuck Andrews, Chief, DPR, Worker Health and Safety Branch